

To improve the display, use

and  $\rightarrow \backslash\text{text}\{ \text{ and } \}$

or  $\rightarrow \backslash\text{text}\{ \text{ or } \}$

not  $\rightarrow \backslash\text{text}\{ \text{ not } \}$

if  $\rightarrow \backslash\text{text}\{ \text{ if } \}$

else  $\rightarrow \backslash\text{text}\{ \text{ else } \}$

implies  $\rightarrow \backslash\text{text}\{ \text{ implies } \}$

for all  $\rightarrow \backslash\text{text}\{ \text{ for all } \}$

for some  $\rightarrow \backslash\text{text}\{ \text{ for some } \}$

$|$   $\rightarrow \backslash\text{mid}$

$\mathbb{B} = \{\mathbf{T}, \mathbf{F}\}$

$\mathbb{N} = \{0, 1, 2, \dots\}$

$A \subseteq B \iff \forall x(x \in A \implies x \in B)$

$A = B \iff \forall x(x \in A \iff x \in B) \iff A \subseteq B \text{ and } B \subseteq A$

$A \subset B \iff A \subseteq B \text{ and } A \neq B$

$\emptyset = \{\}$

$\forall x(x \notin \emptyset)$

$\{1, 2, 2, 1\} = \{1, 2\}$

$\mathcal{P}(A) = \{S \mid S \subseteq A\}$

$(a, b) = (c, d) \iff a = c \text{ and } b = d$

$A \times B = \{(a, b) \mid a \in A \text{ and } b \in B\}$

$(a_1, \dots, a_n) = (b_1, \dots, b_n) \iff \forall i, a_i = b_i$

$A_1 \times \dots \times A_n = \{(a_1, \dots, a_n) \mid a_i \in A_i \text{ for all } i \in \{1, \dots, n\}\}$

$A^n = \{(a_1, \dots, a_n) \mid a_i \in A \text{ for all } i = 1, \dots, n\} = A \times \dots \times A$

$A \cup B = \{x \mid x \in A \text{ or } x \in B\}$  and  $\bigcup_{i \in I} A_i = \{x \mid x \in A_i \text{ for some } i \in I\}$

$A \cap B = \{x \mid x \in A \text{ and } x \in B\}$

$A - B = \{x \mid x \in A \text{ and } x \notin B\}$

$A \oplus B = \{x \mid x \in A \cup B \text{ and } x \notin A \cap B\}$

$f : A \rightarrow B \iff \forall x \in A, \exists! y \in B, f(x) = y$

$f : \mathbb{R} \rightarrow \mathbb{R}$  and  $S \subseteq \mathbb{R}$

$f[S] = \{f(x) \mid x \in S\}$

$f$  is increasing  $\iff (a < b \implies f(a) \leq f(b))$

$(a, b] = \{x \mid a < x \leq b\}$

$\lfloor \_ \rfloor : \mathbb{R} \rightarrow \mathbb{Z}$

$\lfloor x \rfloor = n \iff n \in \mathbb{Z} \text{ and } n \leq x < n + 1$

$|x| = -x$  if  $x < 0$  else  $x$

$x = a/b \iff bx = a \text{ and } b \neq 0$

$(f + g)(x) = f(x) + g(x)$

$(fg)(x) = f(x)g(x)$

$(f/g)(x) = f(x)/g(x)$  if  $g(x) \neq 0$

$(f \circ g)(x) = f(g(x))$

$\text{id}_A : A \rightarrow A$  and  $\forall x, \text{id}_A(x) = x$

$\text{graph}(f) = \{(x, y) \mid f(x) = y\}$

$\text{asso}(\cdot) = ((x \cdot y) \cdot z = x \cdot (y \cdot z))$

$\text{comm}(\cdot) = (x \cdot y = y \cdot x)$

$\text{idem}(\cdot) = (x \cdot x = x)$

$Sgrp(\cdot) = \{asso(\cdot)\}$   
 $CSgrp(\cdot) = Sgrp(\cdot) \cup \{comm(\cdot)\}$   
 $Slat(\cdot) = CSgrp(\cdot) \cup \{idem(\cdot)\}$   
 $Lat(\vee, \wedge) = Slat(\vee) \cup Slat(\wedge) \cup \{(x \wedge y) \vee x = x, (x \vee y) \wedge x = x\}$   
 $\mathbf{L} = \langle L, \vee, \wedge \rangle$  is a lattice if  $\mathbf{L} \models Lat(\vee, \wedge)$   
 Math fonts A  
 $\mathbb{A}BbbA$   
 $\mathbf{A}mbfA$   
 $\mathfrak{A}mfrakA, \mathfrak{A}mbffrakA$   
 $AmitA, \mathbf{A}mbfitA$   
 $AmsansA, \mathbf{A}mbfsansA, AmitsansA, \mathbf{A}mbfitsansA$   
 $AmscrA, \mathcal{A}mbfscrA$   
 $\mathbf{A}mttA$   
 Greek alphabet  
 $\alpha alpha$   
 $\beta beta$   
 $\chi chi$   
 $\delta delta, \Delta Delta$   
 $\gamma gamma, \Gamma Gamma$   
 $\epsilon epsilon, \varepsilon varepsilon$   
 $\eta eta$   
 $\kappa kappa$   
 $\lambda lambda, \Lambda Lambda$   
 $\mu mu$   
 $\nu nu$   
 $\omega omega, \Omega Omega$   
 $\phi phi, \varphi varphi, \Phi Phi$   
 $\pi pi, \Pi Pi$   
 $\psi psi, \Psi Psi$   
 $\rho rho$   
 $\sigma sigma, \Sigma Sigma$   
 $\tau tau$   
 $\theta theta, \vartheta vartheta, \Theta Theta$   
 $\upsilon upsilon$   
 $\xi xi, \Xi Xi$   
 $\zeta zeta$   
 Logic symbols  
 $\neg neg, \vee vee, \wedge wedge$   
 $\Rightarrow Longrightarrow, \Leftarrow Longleftarrow$   
 $\Leftrightarrow Longleftrightarrow$   
 $\forall forall, \exists exists, \nexists nexists$   
 $\diamond lozenge, \square square$   
 $\vdash vdash, \nvdash nvdash, \Vdash Vdash$   
 $\models vDash, \not\models nvDash, \models models$   
 $\Downarrow downzigzagarrow$   
 $\therefore therefore, \blacksquare QED$

Set symbols  
 $\in$  *in*,  $\notin$  *notin*  
 $\ni$  *ni*,  $\nni$   
 $\emptyset$  *emptyset*,  $\wp$  *wp*  
 $\subset$  *subset*,  $\not\subset$  *nssubset*  
 $\subseteq$  *subsepeq*,  $\not\subseteq$  *nsubsepeq*,  $\subsetneq$  *subsetneq*  
 $\supset$  *supset*,  $\not\supset$  *nsupset*  
 $\supseteq$  *supsepeq*,  $\not\supseteq$  *nsupsepeq*,  $\supsetneq$  *supsetneq*  
 $\cap$  *cap*,  $\cup$  *cup*,  $\uplus$  *uplus*  
 $\setminus$  *setminus*,  $\complement$  *complement*  
 $\bigcap$  *bigcap*,  $\bigcup$  *bigcup*,  $\biguplus$  *biguplus*  
 $\aleph$  *aleph*,  $\beth$  *beth*  
 Infix operations  $+$ ,  $-$ ,  $*$ ,  $/$ ,  
 $\bar{\cap}$  *barcap*,  $\bar{\cup}$  *barcup*  
 $\bar{\vee}$  *barvee*,  $\bar{\wedge}$  *barwedge*  
 $\cdot$  *cdot*,  $\circ$  *circ*,  $\bullet$  *bullet*  
 $\div$  *div*,  $\dot{-}$  *dotminus*,  $\text{--}$  *minusdot*  
 $\mp$  *mp*,  $\pm$  *pm*  
 $\odot$  *odot*,  $\ominus$  *ominus*,  $\oplus$  *oplus*  
 $\oslash$  *oslash*,  $\obslash$  *obslash*  
 $\sqcap$  *sqcap*,  $\sqcup$  *sqcup*,  $\amalg$  *amalg*  
 $\times$  *times*,  $\ltimes$  *ltimes*,  $\rtimes$  *rtimes*,  $\bowtie$  *bowtie*  
 $\triangleleft$  *triangleleft*,  $\triangleright$  *triangleright*  
 $\uparrow$  *upand*,  $\wr$  *wr*  
 Functions  $\cos$ ,  $\sin$ ,  $\tan$ ,  $\cot$ ,  $\csc$ ,  $\sec$ ,  $\log$ ,  $\exp$ ,  $\ln$   
 $\Im$  *Im*,  $\Re$  *Re*  
 $\sqrt{\phantom{x}}$  *sqrt*,  $\sqrt[n]{\phantom{x}}$  *cbrt*,  $\sqrt[4]{\phantom{x}}$  *fourthroot*  
 Infix relations  $=$ ,  $<$ ,  $>$ ,  $|$ ,  $:$   
 $\approx$  *approx*,  $\cong$  *cong*,  $\equiv$  *equiv*  
 $\leq$  *le*,  $\leqslant$  *leq*,  $\nleq$  *nleq*,  $\geq$  *ge*,  $\geqslant$  *geq*,  $\ngeq$  *ngeq*  
 $\leqslant$  *leqq*,  $\geqslant$  *geqq*  
 $\ll$  *ll*,  $\gg$  *gg*  
 $\neq$  *ne*,  $\neq$  *neq*  
 $\ngtr$  *ngtr*,  $\nless$  *nless*  
 $\mid$  *mid*,  $\nmid$  *nmid*  
 $\prec$  *prec*,  $\nprec$  *nprec*  
 $\preceq$  *preceq*,  $\npreceq$  *npreceq*  
 $\succ$  *succ*,  $\nsucc$  *nsucc*  
 $\succeq$  *succeq*,  $\nsucceq$  *nsucceq*  
 $\parallel$  *parallel*,  $\nparallel$  *nparallel*  
 $\propto$  *propto*,  $\sim$  *sim*  
 $\sqsubset$  *sqsubset*,  $\sqsubseteq$  *sqsubsepeq*  
 $\sqsupset$  *sqsupset*,  $\sqsupseteq$  *sqsupsepeq*  
 Operators  $\lim$ ,  $\sup$ ,  $\inf$ ,  $d/d$ ,  $\max$ ,  $\min$   
 $\bigcirc$  *bigcirc*,  $\odot$  *bigodot*

$\oplus$  *bigoplus*,  $\otimes$  *bigotimes*  
 $\sqcap$  *bigsqcap*,  $\sqcup$  *bigsqcup*  
 $\bigstar$ ,  $\times$  *bigtimes*,  $\bigcup$  *bigcupdot*  
 $\vee$  *bigvee*,  $\wedge$  *bigwedge*  
 $\int$  *int*,  $\iint$  *iint*,  $\iiint$  *iiint*,  $\iiint$  *iiint*  
 $\oint$  *oint*,  $\oiint$  *oiint*,  $\oiint$  *oiint*  
 $\partial$  *partial*,  $\nabla$  *del*  
 $\prod$  *prod*,  $\sum$  *sum*,  $\coprod$  *coprod*  
Arrows  
 $\downarrow$  *downarrow*,  $\uparrow$  *uparrow*,  $\updownarrow$  *updownarrow*  
 $\Downarrow$  *Downarrow*,  $\Uparrow$  *Uparrow*,  $\Updownarrow$  *Updownarrow*  
 $\hookrightarrow$  *hookrightarrow*,  $\rightarrowtail$  *rightarrowtail*,  $\twoheadrightarrow$  *twoheadrightarrow*  
 $\mapsto$  *mapsto*,  $\mapsto$  *maps from*  
 $\rightarrow$  *to*,  $\rightarrow$  *rightarrow*,  $\leftarrow$  *leftarrow*,  $\leftrightarrow$  *leftrightarrow*  
 $\Rightarrow$  *Rightarrow*,  $\Leftarrow$  *Leftarrow*,  $\Leftrightarrow$  *Leftrightarrow*  
Brackets (, ), [, ], {, }  
 $\langle$  *langle*,  $\rangle$  *rangle*  
 $\lceil$  *lceil*,  $\rceil$  *rceil*  
 $\lfloor$  *lfloor*,  $\rfloor$  *rfloor*  
 $\llbracket$  *llbracket*,  $\rrbracket$  *rrbracket*  
Other !,  
 $\angle$  *angle*,  $\angle$  *Angle*  
 $\perp$  *bot*,  $\top$  *top*  
*breve*, *check*, *hat*,  
 $\checkmark$  *checkmark*  
 $\clubsuit$  *clubsuit*,  $\diamond$  *diamondsuit*,  $\heartsuit$  *heartsuit*,  $\spadesuit$  *spadesuit*  
 $\dagger$  *dagger*  
 $^\circ$  *degree*  
 $\dots$  *dots*,  $\cdots$  *adots*,  $\cdots$  *cdots*,  $\ddots$  *ddots*  
 $\ell$  *ell*  
 $\text{€}$  *euro*  
 $\flat$  *flat*,  $\sharp$  *sharp*  
 $\frown$  *frown*,  $\smile$  *smile*  
 $\bar{h}$  *hbar*  
 $\infty$  *infty*